

NONTECHNICAL SOIL DESCRIPTIONS
HARRISON COUNTY, WEST VIRGINIA
AGRONOMIC (AGR)
Basic Soils (SOI)
GRASSLAND SUITABILITY GROUPS (GSG)

Allegheny silt loam, 8 to 15 percent slopes - AgC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes and rotational grazing.

SOI These Allegheny soils are deep and well drained soils on old stream terraces. These soils have a medium to coarse textured surface and medium to moderately coarse textured subsoil, through which water moves at a moderate rate (estimated permeability .6 to 2.0 inches per hour). These soils are under laid by finer textured shale bedrock that may serve as a layer slowing down water impedance in the substrata. These soils are underlain by bedrock or other alluvial sediments, usually at depths greater than 4 feet. Natural fertility is low and available water capacity is high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Allegheny silt loam, 15 to 25 percent slopes - AgD

AGR This soil has limited suitability for cultivated crops and is better suited to hay and pasture. The hazard of erosion is severe in unprotected areas, and is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI These Allegheny soils are deep and well drained soils on old stream terraces. These soils have a medium to coarse textured surface and medium to moderately coarse textured subsoil, through which water moves at a moderate rate (estimated permeability .6 to 2.0 inches per hour). These soils are under laid by finer textured shale bedrock that may serve as a layer slowing down water impedance in the substrata. These soils are underlain by bedrock or other alluvial sediments, usually at depths greater than 4 feet. Natural fertility is low and available water capacity is high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Atkins silt loam - At

AGR This soil is not suited to cultivated crops unless artificial drainage was installed prior to 1985 as a management practice. The soil is better suited to water-tolerant hay or pasture plants or wildlife habitat in a natural state. Using conservation tillage systems and a crop sequence that includes hay, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Atkins soils are deep (40 to 60+ inches to bedrock), poorly drained (seasonal high water table at or near the surface) soils that have formed in alluvial sediments along streams or drainageways. They have medium textured surface and subsoil. The soil permeability is moderate (estimated at 0.6 to 2.0 inches per hour). Natural fertility is moderate and available water capacity is high. These soils are usually located on the landscape along drainageways in depressions or low swamp like areas with poor drainage. These Atkins soils are usually considered as hydric soils and usually found in wetlands in a natural undrained site.

GSG - Wetlands - Very deep, poorly and very poorly drained soils with low to moderate natural fertility. High soil moisture holding capacity and pH ranges from 4.0 to 6.0. Annual precipitation is 41 to 50 inches.

Chavies fine sandy loam - Ch

AGR This soil is well suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI These Chavies soils are very deep (greater than 6 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium to moderately coarse textured surface layer and a coarse textured subsoil. Estimated permeability is moderate (2.0 to 6.0 inches per hour). These soils have a rare flood hazard in areas not protected from flooding. They are flooded only when flood waters are at their highest. Consult the Army Corps of Engineers for more specific information on flooding frequency. Natural fertility is moderate and available water capacity is moderate to high.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3.

Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Clarksburg silt loam, 3 to 8 percent slopes - ClB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that included hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Clarksburg soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent. Clarksburg soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate to high and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Clarksburg silt loam, 8 to 15 percent slopes - ClC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

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GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Clarksburg silt loam, 15 to 25 percent slopes - C1D

AGR This soil has limited suitability for cultivated crops. It is better suited to hay or pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Clarksburg soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent. Clarksburg soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate to high and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Clarksburg silt loam, 15 to 25 percent slopes, severely eroded - C1D3

AGR This soil is not suited to cultivated crops and has limited suitability for hay, but it is suited to pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If this soil is used for pasture, overgrazing is a major management concern. Major pasture needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Clarksburg soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent. Clarksburg soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural

fertility is moderate to high and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Cookport silt loam, 3 to 8 percent slopes - CoB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that included hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Cookport soils are deep and moderately well drained (seasonal high water table 16 to 24 inches below soil surface). They have formed in acid material weathered from interbedded sandstone, siltstone and shale found mostly on ridge tops. Bedrock is generally at depths greater than 40 inches. These soils have a medium textured surface and subsoil. A very firm, dense layer fragipan is found at a depth of 16 to 27 inches, restricting the downward flow of water and air. The estimated soil permeability is slow (less than 0.2 inches per hour). Natural fertility is low to moderate and available water capacity is moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Cookport silt loam, 8 to 15 percent slopes - CoC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Cookport soils are deep and moderately well drained (seasonal high water table 16 to 24 inches below soil surface). They have formed in acid material weathered from interbedded sandstone, siltstone and shale found mostly on ridge tops. Bedrock is generally at depths greater than 40 inches. These soils have a medium textured surface and subsoil. A very firm, dense layer fragipan is found at a depth of 16 to 27 inches, restricting the downward flow of water and

air. The estimated soil permeability is slow (less than 0.2 inches per hour). Natural fertility is low to moderate and available water capacity is moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Culleoka silt loam, 8 to 15 percent slopes - CuC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI This Culleoka soil is moderately deep, well drained soils formed in residuum from in lime-influenced material weathered from interbedded shale, siltstone, sandstone and thin layers of limestone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is low or moderate.

GSG - Limy Uplands - Moderately deep, well drained soils with moderate to high natural fertility. Low to moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent or 0 to 15 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Culleoka silt loam, 15 to 25 percent slopes - CuD

AGR This soil has limited suitability for cultivated crops and is better suited to hay and pasture. The hazard of erosion is severe in unprotected areas, and is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI This Culleoka soil is moderately deep, well drained soils formed in residuum from in lime-influenced material weathered from interbedded shale, siltstone, sandstone and thin layers of limestone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is

generally rippable with light power equipment. Natural fertility is moderate and available water capacity is low or moderate.

GSG - Limy Uplands - Moderately deep, well drained soils with moderate to high natural fertility. Low to moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent or 0 to 15 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Culleoka silt loam, 25 to 35 percent slopes - CuE

AGR This soil is not suited to cultivated crops or hay but is suited for pasture. The hazard of erosion is very severe in unprotected areas. If this soil is used for pasture, overgrazing is a major management concern. Proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm are major pasture management needs.

SOI This Culleoka soil is moderately deep, well drained soils formed in residuum from in lime-influenced material weathered from interbedded shale, siltstone, sandstone and thin layers of limestone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is low or moderate.

GSG - Limy Hills - Moderately deep, well drained soils with moderate to high natural fertility. Low moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 45 percent or 15 to 35 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Culleoka silt loam, 25 to 35 percent slopes, severely eroded - CuE3

AGR This soil is not suited to cultivated crops or hay and is difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to permanent cover. Mulching will help protect seeded areas until the plants become established.

SOI This Culleoka soil is moderately deep, well drained soils formed in residuum from in lime-influenced material weathered from interbedded shale, siltstone, sandstone and thin layers of limestone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is low or moderate.

GSG - Limy Hills - Moderately deep, well drained soils with moderate to high natural fertility. Low moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 45 percent or 15 to 35 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Culleoka silt loam, 35 to 60 percent slopes, severely eroded - CuF3

AGR These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. Livestock should be excluded from this soil. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to a permanent cover. Mulching will help protect seeded areas until the plants become established.

SOI This Culleoka soil is moderately deep, well drained soils formed in residuum from in lime-influenced material weathered from interbedded shale, siltstone, sandstone and thin layers of limestone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is low or moderate.

GSG - Limy Hills - Moderately deep, well drained soils with moderate to high natural fertility. Low moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 45 percent or 15 to 35 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Dekalb sandy loam, 8 to 15 percent slopes - DeC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI These Dekalb soils are moderately deep, well drained soils on uplands. They have a moderately coarse textured surface layer and moderately coarse to coarse textured subsoil. The subsoil has over 35% sandstone fragments. The subsoil has moderately rapid to rapid (estimated 2.0 to 20.0 inches per hour) permeability. They are underlain at 20 to 40 inches by sandstone, interbedded with some siltstone and shale. Natural fertility is low and available water capacity is very low to moderate.

GSG - Dry Uplands - Moderately deep, well drained soils with low natural fertility. Low moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent or 0 to 15 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Dekalb extremely stony sandy loam, very steep - DSF

AGR These soils are not suited to cultivated crops, hay, or pasture because of slope, surface stones and inclusions of rock outcrops that generally make these soils unsuitable for farming.

SOI These Dekalb soils have an extremely stony surface with an occasional rock outcrop. These soils are moderately deep, well drained soils on uplands. They have a moderately coarse textured surface layer and moderately coarse to coarse textured subsoil. The subsoil has over 35% sandstone fragments. The subsoil has moderately rapid to rapid (estimated 2.0 to 20.0 inches per hour) permeability. They are underlain at 20 to 40 inches by sandstone, interbedded with some siltstone and shale. Natural fertility is low and available water capacity is very low to moderate.

GSG - Not Suited - All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible.

Ernest silt loam, 3 to 8 percent slopes - EnB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that included hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Ernest soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent in the upper part of the subsoil. Ernest soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow to moderately slow (estimated 0.06 to 0.6 inches per hour) permeability. The fragipan has from 5 to 40 percent rock fragments. They generally have a seasonal high water table starting at 16 to 26 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Ernest silt loam, 8 to 15 percent slopes - EnC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational

grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Ernest soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent in the upper part of the subsoil. Ernest soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow to moderately slow (estimated 0.06 to 0.6 inches per hour) permeability. The fragipan has from 5 to 40 percent rock fragments. They generally have a seasonal high water table starting at 16 to 26 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Ernest silt loam, 15 to 25 percent slopes - EnD

AGR This soil has limited suitability for cultivated crops. It is better suited to hay or pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

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GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Ernest very stony silt loam, 3 to 15 percent slopes - EsC

AGR This stony soil is not suited to cultivated crops or hay because of the stoniness, but is suited to pasture if stones are not a problem. Stones restrict the use of farm machinery. The hazard of erosion,

which is severe in unprotected areas, is a major management concern. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Ernest very stony soils have surface stones covering from 1 to 3 percent of the surface and ranging in diameter from 10 to 25 inches. These Ernest soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent in the upper part of the subsoil. Ernest soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow to moderately slow (estimated 0.06 to 0.6 inches per hour) permeability. The fragipan has from 5 to 40 percent rock fragments. They generally have a seasonal high water table starting at 16 to 26 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Very Rocky Acid Soils - Moderately deep, deep, and very deep well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally below 5.3. Slope ranges from 0 to 25 percent. Soils in this group have a very cobbly, very stony, or very rocky surface. Annual precipitation is 41 to 50 inches.

Ernest very stony silt loam, 15 to 35 percent slopes - EsD

AGR This stony soil is not suited to cultivated crops or hay, but is suited to pasture. Stones restrict the use of farm machinery. The hazard of erosion, which is severe in unprotected areas, is a major management concern. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Ernest very stony soils have surface stones covering from 1 to 3 percent of the surface and ranging in diameter from 10 to 25 inches. These Ernest soils are very deep, moderately well drained soils on colluvial footslope areas. They have medium textured surface layers and medium to moderately fine textured subsoils with a rock fragment content ranging from 0 to 30 percent in the upper part of the subsoil. Ernest soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow to moderately slow (estimated 0.06 to 0.6 inches per hour) permeability. The fragipan has from 5 to 40 percent rock fragments. They generally have a seasonal high water table starting at 16 to 26 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is moderate to high. These soils have a slip hazard on slopes exceeding 10 to 15 percent.

GSG - Very Rocky Acid Soils - Moderately deep, deep, and very deep well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally below 5.3. Slope ranges from 0 to 25 percent. Soils in this group have a very cobbly, very stony, or very rocky surface. Annual precipitation is 41 to 50 inches.

Faywood silty clay loam, 8 to 15 percent slopes - FaC

AGR This soil has limited suitability for cultivated crops and is better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. In addition, the soil is difficult to work and will become puddled if worked to wet. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, maintaining sod in shallow drainageways, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonable firm.

SOI These Faywood soils are moderately deep, well drained and clayey soils that have formed in limestone interbedded with thin layers of shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability ranges from moderately slow to slow (0.6 to .06 inches per hour). Natural fertility is high and available water capacity is moderate. Faywood soils have a slip hazard on slopes greater than 8 percent. Their subsoils are moderately susceptible to shrinking when dry and swelling when wet.

GSG - Limy Uplands - Moderately deep, well drained soils with moderate to high natural fertility. Low to moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent or 0 to 15 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Faywood silty clay loam, 15 to 25 percent slopes - FaD

AGR This soil is not suited to cultivated crops and is better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI These Faywood soils are moderately deep, well drained and clayey soils that have formed in limestone interbedded with thin layers of shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability ranges from moderately slow to slow (0.6 to .06 inches per hour). Natural fertility is high and available water capacity is moderate. Faywood soils have a slip hazard on slopes greater than 8 percent. Their subsoils are moderately susceptible to shrinking when dry and swelling when wet.

GSG - Limy Uplands - Moderately deep, well drained soils with moderate to high natural fertility. Low to moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent or 0 to 15 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Faywood silty clay loam, 25 to 35 percent slopes - FaE

AGR This soil is not suited to cultivated crops or hay, but it is suited to pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If this soil is used for pasture, overgrazing is a major management concern. Major pasture needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Faywood soils are moderately deep, well drained and clayey soils that have formed in limestone interbedded with thin layers of shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability ranges from moderately slow to slow (0.6 to .06 inches per hour). Natural fertility is high and available water capacity is moderate. Faywood soils have a slip hazard on slopes greater than 8 percent. Their subsoils are moderately susceptible to shrinking when dry and swelling when wet.

GSG - Limy Hills - Moderately deep, well drained soils with moderate to high natural fertility. Low moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 45 percent or 15 to 35 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Faywood silty clay loam, 35 to 60 percent slopes - FaF

AGR These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas.

SOI These Faywood soils are moderately deep, well drained and clayey soils that have formed in limestone interbedded with thin layers of shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability ranges from moderately slow to slow (0.6 to .06 inches per hour). Natural fertility is high and available water capacity is moderate. Faywood soils have a slip hazard on slopes greater than 8 percent. Their subsoils are moderately susceptible to shrinking when dry and swelling when wet.

GSG - Limy Hills - Moderately deep, well drained soils with moderate to high natural fertility. Low moderate moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 45 percent or 15 to 35 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Fluvaquents, overwash - FO

AGR Frequent flooding makes these soils unsuitable for cultivated crops or hay. These soils are suited to pasture. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soils are reasonably firm.

SOI These (Fluvaquents) soils are nearly level, poorly drained (seasonal high water table at or near the soil surface), deep soils and on floodplains. These soils have formed in overwash sediments or erosional deposition from surface mines, construction sites or highly eroded farmland. The 1 to 3 feet of overwash sediments is generally a medium texture channery sediment. The under lying sediments range from moderately fine to coarse gravelly sediments. These soils are too variable to estimate the permeability. Bedrock is usually at depths greater than 4 feet and is generally rippable with light power equipment. Natural fertility is low to moderate and available water capacity is moderate to high. These soils are generally considered as hydric soils.

GSG - Not Suited - All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible.

Gilpin silt loam, 3 to 8 percent slopes - G1B

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes and rotational grazing.

SOI Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin silt loam, 8 to 15 percent slopes - G1C

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin silt loam, 15 to 25 percent slopes - G1D

AGR This soil has limited suitability for cultivated crops and is better suited to hay and pasture. The hazard of erosion is severe in unprotected areas, and is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin silt loam, 25 to 35 percent slopes - G1E

AGR This soil is not suited to cultivated crops or hay but is suited for pasture. The hazard of erosion is very severe in unprotected areas. If this soil is used for pasture, overgrazing is a major management concern. Proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm are major pasture management needs.

SOI Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally

rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Acid Hills - Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Gilpin silt loam, 35 to 60 percent slopes - G1F

AGR This soil is not suited to cultivated crops or hay and is difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas.

SOI Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Acid Hills - Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Gilpin very stony silt loam, 3 to 15 percent slopes - GsC

AGR This extremely stony soil is not suited to cultivated crops or hay, but is somewhat suited to pasture. Stones restrict the use of farm machinery. The hazard of erosion, which is severe in unprotected areas, is a major management concern. If this soil is used for pasture, the major management needs include removal of surface stones, proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI This stony unit has surface stones greater than 10 inches in diameter covering .1 to 3 percent of the soil surface. These Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Very Rocky Acid Soils - Moderately deep, deep, and very deep well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally below 5.3. Slope ranges from 0 to 25 percent. Soils in this group have a very cobbly, very stony, or very rocky surface. Annual precipitation is 41 to 50 inches.

Gilpin very stony silt loam, 15 to 35 percent slopes - GsE

AGR These stony soils are not suited to cultivated crops or hay and are difficult to manage for pasture. The erosion hazard is very severe in unprotected areas.

SOI This stony unit has surface stones greater than 10 inches in diameter covering .1 to 3 percent of the soil surface. These Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Very Rocky Acid Soils - Moderately deep, deep, and very deep well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally below 5.3. Slope ranges from 0 to 25 percent. Soils in this group have a very cobbly, very stony, or very rocky surface. Annual precipitation is 41 to 50 inches.

Gilpin very stony silt loam, very steep - GTF

AGR These soils are not suited to cultivated crops, hay, or pasture because of slope, surface stones and inclusions of rock outcrops that generally make these soils unsuitable for farming.

SOI This stony unit has surface stones greater than 10 inches in diameter covering .1 to 3 percent of the soil surface. These Gilpin soils are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.

GSG - Very Rocky Acid Soils - Moderately deep, deep, and very deep well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally below 5.3. Slope ranges from 0 to 25 percent. Soils in this group have a very cobbly, very stony, or very rocky surface. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 8 to 15 percent slopes - GuC

AGR These soils are suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain

desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm.

SOI This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 8 to 15 percent slopes, severely eroded - GuC3

AGR These soils have limited suitability for cultivated crops and are better suited to hay and pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crops residue to the soil help to control erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm.

SOI This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per

hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 15 to 25 percent slopes - GuD

AGR These soils have limited suitability for cultivated crops and are better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm.

SOI This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 15 to 25 percent slopes, severely eroded - GuD3

AGR These soils are not suited to cultivated crops or hay, but are suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If these soils are used for pasture, overgrazing can result in more severe erosion. Proper

stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm are major pasture management needs.

SOI This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 25 to 35 percent slopes - GuE

AGR These soils are not suited to cultivated crops or hay, but are suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If these soils are used for pasture, overgrazing is a major management concern. Proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm are major pasture management needs.

SOI This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment. Natural fertility of the Upshur soil is

moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Hills - Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 25 to 35 percent slopes, severely eroded - GuE3
AGR These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to permanent cover. Mulching will help protect seeded areas until the plants become established.

SOI This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Hills - Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Gilpin-Upshur complex, 35 to 70 percent slopes, severely eroded - GuF3
AGR These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. Livestock should be excluded from this soil. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to a permanent cover. Mulching will help protect seeded areas until the plants become established.

SOI This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.

GSG - Acid Hills - Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Guernsey silt loam, 3 to 8 percent slopes - GyB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI Guernsey soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. These upland soils have an estimated permeability of slow to moderately slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a fine (clayey) subsoil. Bedrock of siltstone, calcareous shale or limestone are generally at a depths greater than 50 inches. Natural fertility is high and available water capacity is high. The Guernsey soils have a slip hazard on slopes exceeding 10 to 15 percent slopes.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Guernsey silt loam, 8 to 15 percent slopes - GyC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI Guernsey soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. These upland soils have an estimated permeability of slow to moderately slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a fine (clayey) subsoil. Bedrock of siltstone, calcareous shale or limestone are generally at a depths greater than 50 inches. Natural fertility is high and available water capacity is high. The Guernsey soils have a slip hazard on slopes exceeding 10 to 15 percent slopes.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Guernsey silt loam, 15 to 25 percent slopes - GyD

AGR This soil is not suited to cultivated crops and is better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI Guernsey soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. These upland soils have an estimated permeability of slow to moderately slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a fine (clayey) subsoil. Bedrock of siltstone, calcareous shale or limestone are generally at a depths greater than 50 inches. Natural fertility is high and available water capacity is high. The Guernsey soils have a slip hazard on slopes exceeding 10 to 15 percent slopes.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Guernsey silt loam, 15 to 25 percent slopes, severely eroded - GyD3

AGR This soil is generally not suited to cultivated crops or hay and has limited suitability for pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If

the soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI Guernsey soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. These upland soils have an estimated permeability of slow to moderately slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a fine (clayey) subsoil. Bedrock of siltstone, calcareous shale or limestone are generally at a depths greater than 50 inches. Natural fertility is high and available water capacity is high. The Guernsey soils have a slip hazard on slopes exceeding 10 to 15 percent slopes.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Hackers silt loam - Ha

AGR This soil is well suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI These Hackers soils are deep (greater than 5 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium textured surface layer and a medium to moderately fine textured subsoil. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a rare flood hazard and they are flooded only when flood waters are at their highest. Natural fertility is high and available water capacity is high.

GSG - Moist Loams - Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Lindside silt loam - Ln

AGR This soil is suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Lindside soils are very deep (greater than 6 feet to bedrock), moderately well drained (seasonal high water table at a depth of 16 to 24 inches) soils that have formed in alluvial sediments along

the River. They usually have a silt loam surface layer and a silt loam or silty clay loam subsoil. The estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Natural fertility is high and available water capacity is high. These soils have a flood hazard however the flooding frequency will vary with location along the River. The U. S. Army Corps of Engineers should be consulted for specific flooding frequency.

GSG - Moist Loams - Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Melvin silt loam - Me

AGR This soil is not suited to cultivated crops unless artificial drainage was installed prior to 1985 as a management practice. The soil is better suited to water-tolerant hay or pasture plants or wildlife habitat in a natural state. Using conservation tillage systems and a crop sequence that includes hay, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Melvin soils are deep (greater than 5 feet to bedrock), poorly drained (seasonal high water table at or near the surface) soils that have formed in alluvial sediments along streams or drainageways. They have medium textured surface and subsoil. The soil permeability is moderate (estimated at 0.6 to 2.0 inches per hour). Natural fertility is high and available water capacity is high. These soils are usually located on the landscape along drainageways in depressions or low swamp like areas with poor drainage. These Melvin soils are usually considered as hydric soils and usually found in wetlands in a natural undrained site.

GSG - Wetlands - Very deep, poorly and very poorly drained soils with low to moderate natural fertility. High soil moisture holding capacity and pH ranges from 4.0 to 6.0. Annual precipitation is 41 to 50 inches.

Monongahela silt loam, 3 to 8 percent slopes - MoB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that included hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Monongahela soils are very deep, moderately well drained soils on high stream terraces. They have medium textured surface layers and medium to moderately fine textured subsoils. Monongahela

soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is low and available water capacity is moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Monongahela silt loam, 8 to 15 percent slopes- MoC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Monongahela soils are very deep, moderately well drained soils on high stream terraces. They have medium textured surface layers and medium to moderately fine textured subsoils. Monongahela soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is low and available water capacity is moderate.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Nolin silt loam - No

AGR This soil is suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places, crops are subject to damage from flooding. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Nolin soils are are very deep, well drained, and have formed in recent alluvial sediments along major streams. The Nolin soils have a moderate permeability (0.6 to 2.0 inches per hour). These silty soils generally have a medium soil texture in the surface and subsoil. Bedrock is generally at depths greater than 5 feet. These soils are generally subject to occasional flooding. Natural fertility is high and available water capacity is high.

GSG - Moist Loams - Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Philo silt loam - Ph

AGR This soil is suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places crops are subject to damage from flooding. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Philo soils are very deep (generally greater than 5 feet to bedrock), moderately well drained (seasonal high water table at a depth of 16 to 24 inches) soils that have formed in recent alluvial sediments. They have a medium textured surface layer and moderately coarse to coarse textured subsoil. The estimated soil permeability is moderate (0.6 to 2.0 inches per hour) in the subsoil and moderately rapid in the substrata below the subsoil. Natural fertility is moderate and available water capacity is moderate to high. These soils have an occasional flood hazard.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Pope silt loam - Po

AGR This soil is suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places, crops are subject to damage from flooding. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Pope soils are very deep (generally greater than 5 feet to bedrock) and well drained soils. These soils have formed in acid alluvial floodplain sediments washed from soils underlain by sandstone, siltstone, and shale. They have a medium textured surface layer and moderately coarse to coarse textured subsoil. The estimated soil permeability is moderate to moderately rapid (0.6 to 6.0 inches per hour) in the subsoil. Natural fertility is moderate and available water capacity is moderate to high. These soils generally have an occasional flood hazard.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Rayne silt loam, 3 to 8 percent slopes - RaB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If the soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI Rayne soil are deep, well drained soils formed in acid material weathered interbedded shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is generally at depths of 40 to 60 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is moderate or high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Rayne silt loam, 8 to 15 percent slopes - RaC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI Rayne soil are deep, well drained soils formed in acid material weathered interbedded shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is generally at depths of 40 to 60 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is moderate or high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Strip mines - Sm

AGR - No agronomic soil description available.

SOI 026 Udorthents, Strip Mine: This is a miscellaneous area of disturbed soil material on an area that was surfaced mined for coal. This unit may include areas of natural soils between strip benches or around edge of unit. These soils are generally more than 3 feet to bedrock, loamy, rock fragments range from 30 to 80 percent, soil permeability is too variable to rate and slopes range from nearly level areas on ridgetops and benches to almost vertical high walls. These disturbed soils are too variable to assign specific soil properties.

GSG - No Grassland Suitability Group applicable.

Tygart silt loam - Tg

AGR This soil without artificial drainage has limited suitability for cultivated crops and is better suited to water-tolerant hay or pasture plants. Using a conservation tillage system and a crop sequence that includes hay, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Tygart soils have formed in acid silt and clay slack water terrace deposits and are very deep (greater than 60 inches to bedrock), and somewhat poorly drained (seasonal high water table less than 15 inches of the surface, just under topsoil). The soil permeability is slow in the subsoil (estimated at less than .2 inches per hour). This soil has a medium to fine textured surface and fine (clayey) textured subsurface. Natural fertility is low to medium and available water capacity is high. This soil may have included hydric soils with poor drainage.

GSG - Wetlands - Very deep, poorly and very poorly drained soils with low to moderate natural fertility. High soil moisture holding capacity and pH ranges from 4.0 to 6.0. Annual precipitation is 41 to 50 inches.

Udifuvents and Fluvaquents - UF

AGR Frequent flooding makes these soils unsuitable for cultivated crops or hay. These soils are suited to pasture. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soils are reasonably firm.

SOI Udifuvents and Fluvaquents loamy soil unit is intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. The Udifuvents soils are extremely variable and are mostly excessively drained to moderately well drained soils on flood plains. Surface textures generally range from loamy sand to loam and subsoil textures are loamy sand or sandy loam to gravelly sandy loam to gravelly loamy sand. Soil permeability is moderate to moderately rapid (estimated at 0.6 to 6.0 inches per hour). Bedrock is at depths greater than 4 feet. The Fluvaquents soils are nearly level, poorly to somewhat poorly drained (seasonal high water table at or near the soil

surface to a depth of 16 inches), deep soils and mainly on floodplains. They have a medium surface texture and medium to fine textured subsoil. These soils are too variable to estimate the permeability. Bedrock is usually at depths greater than 4 feet and is generally rippable with light power equipment. These soils are subject to frequent to occasional flooding. Natural fertility is high and available water capacity is high for both the Udifluvents and Fluvaquents.

GSG - Wetlands (Fluvaquents only) - Very deep, poorly and very poorly drained soils with low to moderate natural fertility. High soil moisture holding capacity and pH ranges from 4.0 to 6.0. Annual precipitation is 41 to 50 inches.

GSG - Acid Loams (Udifluvents only) - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Upshur silty clay, 8 to 15 percent slopes, severely eroded - UhC3

AGR This soil is not suited to cultivated crops and hay, but it is suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Upshur soils are deep (40 to 60 inches to bedrock or shale), well drained and formed in lime influenced material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is slow to very slow (less than 0.2 inches per hour). Bedrock is generally rippable with light power equipment. Natural fertility is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard on slopes greater than 8 percent. Their subsoils are highly susceptible to shrinking when dry and swelling when wet.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Upshur silty clay, 15 to 25 percent slopes, severely eroded - UhD3

AGR This soil is generally not suited to cultivated crops or hay and has limited suitability for pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If the soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI These Upshur soils are deep (40 to 60 inches to bedrock or shale), well drained and formed in lime influenced material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet.

Estimated soil permeability is slow to very slow (less than 0.2 inches per hour). Bedrock is generally rippable with light power equipment. Natural fertility is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard on slopes greater than 8 percent. Their subsoils are highly susceptible to shrinking when dry and swelling when wet.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Urban land - UL

AGR - Not used for Agriculture

SOI 025 Urbanland: This is a miscellaneous area dominated by buildings, roads, parking lots, and other non-soil areas.

GSG - Not Suited - All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible.

Vandalia silty clay loam, 3 to 8 percent slopes - VaB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If the soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.

SOI These Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Vandalia silty clay loam, 8 to 15 percent slopes - VaC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a

crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Vandalia silty clay loam, 15 to 25 percent slopes, severely eroded - VaD3

AGR This soil is not suited to cultivated crops and has limited suitability for hay, but it is suited to pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If this soil is used for pasture, overgrazing is a major management concern. Major pasture needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI These severely eroded Vandalia soils have little or no top soil exposing the subsoil in some locations. The Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 8 to 15 percent slopes - WmC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a

crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 8 to 15 percent slopes, severely eroded - WmC3

AGR This soil have limited suitability for cultivated crops and is better suited to hay and pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crops residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI These severely eroded Westmoreland soils have little or no top soil, thus exposing the subsoil in some locations. These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 15 to 25 percent slopes - WmD

AGR This soil has limited suitability for cultivated crops and is better suited to hay and pasture. The hazard of erosion is severe in unprotected areas, and is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 15 to 25 percent slopes, severely eroded - WmD3

AGR This soil is not suited to cultivated crops or hay, but is suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If this soil is used for pasture, overgrazing can result in more severe erosion. Proper stocking rates to maintain desirable grasses and legumes, seeding bare areas to a permanent cover, rotational grazing, and deferment of grazing until the soil is reasonably firm are major pasture management needs.

SOI These severely eroded Westmoreland soils have little or no top soil, thus exposing the subsoil in some locations. These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Loams - Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 25 to 35 percent slopes - WmE

AGR This soil is not suited to cultivated crops or hay but is suited for pasture. The hazard of erosion is very severe in unprotected areas. If this soil is used for pasture, overgrazing is a major management concern. Proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm are major pasture management needs.

SOI These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Hills - Moderately deep, deep, and very deep moderately well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 25 to 35 percent slopes, severely eroded - WmE3

AGR This soil is not suited to cultivated crops or hay and is difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to permanent cover. Mulching will help protect seeded areas until the plants become established.

SOI These severely eroded Westmoreland soils have little or no top soil, thus exposing the subsoil in some locations. These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Hills - Moderately deep, deep, and very deep moderately well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Westmoreland silt loam, 35 to 60 percent slopes - WmF

AGR This soil is not suited to cultivated crops or hay and is difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas.

SOI These Westmoreland soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per

hour). These soils have a medium textured surface and subsurface with rock fragments increasing with depth. This soil is underlain by bedrock of shale, siltstone, sandstone or limestone at depths greater than 40 inches. Natural fertility is high and available water capacity is moderate to high. The Westmoreland soil have closely associated included soils on the same landscape and map unit that have a slip hazard on slope greater than 15 percent.

GSG - Fertile Hills - Moderately deep, deep, and very deep moderately well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches.

Wharton silt loam, 8 to 15 percent slopes - WrC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI Wharton soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. Estimated permeability is slow to moderately slow (0.06 to 0.6 inches per hour). These soils have a medium textured surface layer and a moderately fine to fine subsoil. Bedrock is generally at depths of near 40 inches, and is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is moderate or high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Wharton silt loam, 15 to 25 percent slopes - WrD

AGR This soil is not suited to cultivated crops and is better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.

SOI Wharton soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. Estimated permeability is slow to moderately slow (0.06 to 0.6 inches per hour). These soils have a medium textured surface layer and a moderately fine to fine subsoil. Bedrock is generally at depths of near 40 inches, and is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is moderate or high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Zoar silt loam, 3 to 8 percent slopes - ZoB

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. In some locations included hydric soils may make this soil unsuited to cultivated crops unless artificially drained prior to 1985. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI This Zoar soil unit is a somewhat poorly to moderately well drained soil (seasonal high water table within 1 to 2 feet of the surface). This unit is found on an old slack water alluvial terrace. The Zoar soil has a moderate surface texture and moderately fine to fine textured subsurface. The fine textured subsoil has a slow permeability (estimated 0.06 to 0.2 inches per hour). These fine textured subsoils have a moderate susceptibility to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is low and available water capacity is moderate or high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.

Zoar silt loam, 8 to 15 percent slopes - ZoC

AGR This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.

SOI This Zoar soil unit is a somewhat poorly to moderately well drained soil (seasonal high water table within 1 to 2 feet of the surface). This unit is found on an old slack water alluvial terrace. The Zoar soil has a moderate surface texture and moderately fine to fine textured subsurface. The fine textured subsoil has a slow permeability (estimated 0.06 to 0.2 inches per hour). These fine textured subsoils have a moderate susceptibility to shrinking when drying and swelling upon wetting. Bedrock is generally at depths

greater than 5 feet. Natural fertility is low and available water capacity is moderate or high.

GSG - Acid Loams - Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.